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APR 04 2011

AMENDMENTS TO THE CLAIMS

Listing of Claims

1. (previously presented) A relay terminal for relaying communication signals from originator user terminals to destination user terminals, comprising:

a memory storing relay-authorization-and-priority data for a plurality of said originator user terminals and destination user terminals having respective identification codes;

means for simultaneously receiving communication signals sent from a plurality of said originator terminals for relay to a plurality of said destination terminals that are identified in said received communication signals, wherein said received signals include identification codes for said originator terminals and identification codes for said identified destination terminals;

means for detecting said identification codes in said received communications signals;

a computer adapted for processing said detected identification codes in combination with said stored data to determine if immediate relaying of said received communication signals to respective said identified destination terminals is authorized; and

means for relaying said received communication signals immediately to only those of said identified destination terminals to which immediate relaying is authorized in accordance with said determination.

2. (original) A relay terminal according to Claim 1, further comprising:

means for updating said stored relay-authorization-and-priority data immediately in response to a received control message.

3. (previously presented) A relay terminal according to Claim 2, wherein said computer is adapted for re-determining said immediate-relay authorization in accordance with said updated stored relay-authorization-and-priority data and to preempt at least some previously authorized signal relaying in accordance with said re-determination.

4. (previously presented) A relay terminal according to Claim 1, wherein the computer is adapted for processing said detected identification codes and said stored data in combination with geographical-position data for the relay terminal and the identified destination terminals to determine whether immediate relaying of said received communication signal to the respective identified destination terminals is authorized in accordance with the relative positions of the relay terminal and the identified destination terminals.

5. (previously presented) A relay terminal according to Claim 4, wherein the computer is adapted for processing said detected identification codes and said stored data in combination with time-of-day data to determine whether immediate relaying of said received communication signals to respective said identified destination terminals is authorized in accordance with the time of day.

6. (original) A relay terminal according to Claim 1, further comprising:

means for storing for delayed relay those received communication signals of which immediate relaying to respective said identified destination terminals is not authorized in accordance with said determination.

7. (original) A relay terminal according to Claim 1, further comprising means for recording data indicative of the performance of the relay terminal with respect to the timing of relaying said received communication signals in relation the time of receipt of the respective communication signals by the relay terminal.

8. (original) A relay terminal according to Claim 7, in combination with means for processing said recorded performance data to compile statistics for use in recomposing said stored relay-authorization-and-priority data.

9. (original) A relay terminal according to Claim 1, further comprising means for processing directional-position data associated with said destination terminals for defining beam paths for relaying signals to said destination terminals.

10. (original) A relay terminal according to Claim 9, further comprising:

means for applying frequency-hopping patterns to said received communication signals for said relay of said communications signals;

means for storing a library of algorithms and parameters for executing a plurality of frequency-hopping patterns; and

means for selecting algorithms and parameters from said library that cause different frequency-hopping patterns to be applied for each simultaneous said receipt and relay of said communication signals.

11. (original) A relay terminal according to Claim 1, further comprising:

means for applying frequency-hopping patterns to said received communication signals for said relay of said communications signals;

means for storing a library of algorithms and parameters for executing a plurality of frequency-hopping patterns; and

means for selecting algorithms and parameters from said library that cause different frequency-hopping patterns to be applied for each simultaneous said receipt and relay of said communication signals.

12. (previously presented) A relay terminal according to Claim 11, wherein the selecting means are adapted for causing respectively different said frequency-hopping patterns to be applied to acquisition, identification and payload segments of the relayed communication signals.

13. (previously presented) A relay terminal according to Claim 1, further comprising means for causing respectively different frequency-hopping patterns to be applied to acquisition, identification and payload segments of the relayed communication signals.

14. (original) A relay terminal according to Claim 1, wherein the relaying means are adapted for simultaneously relaying a plurality of communications signals and for applying a different frequency-hopping pattern to each said simultaneously relayed communication signal.

15. (original) A relay terminal according to Claim 1, further comprising means for processing directional-position data associated with a given said originator terminal to form a beam path for communications with the given originator terminal.

16. (previously presented) A relay terminal according to Claim 1, further comprising

means for deriving directional-position data associated with a given said originator terminal from an acquisition segment of a burst of a said communication signal received from a given said originator terminal; and

means for immediately defining a beam path in accordance with said derived directional-position data to enable receipt of the remaining portion of said received signal burst within the defined beam path.

17. (previously presented) A relay terminal according to Claim 16, further comprising means for transmitting an error-corrected version of said received signal burst back to said given originator terminal within the defined beam path.

18. (previously presented) A relay terminal according to Claim 1, further comprising

means for deriving directional-position data associated with a plurality of said originator terminals from acquisition segments of bursts of respective said communication signals simultaneously received from a plurality of said originator terminals;

means for defining respective beam paths in accordance with said derived directional-position data to enable receipt of the remaining portions said received signal bursts within the respective defined beam paths; and

means for transmitting error-corrected versions of said received signal bursts back to said plurality of originator terminals within said respective defined beam paths.

19. (original) A relay terminal according to Claim 1, wherein the receiving means are adapted for simultaneously receiving a plurality of communication signals within a plurality of distinct beam paths from a plurality of different originator terminals; and

wherein the relaying means are adapted for simultaneously relaying communications signals within a plurality of distinct beam paths to a plurality of different destination terminals.

20. (original) A relay terminal according to Claim 1, wherein the receiving means include a plurality of receivers for respectively receiving said communication signals sent from said plurality of said originator terminals.

21. (previously presented) A communication system, comprising:

at least one said relay terminal according to Claim 1 disposed in a communication-satellite; and

at least one said relay terminal according to Claim 1 disposed in an aircraft;

wherein the processing means of each said relay terminal is adapted for processing the same detected identification codes in combination with the same said stored data to determine whether immediate relaying of said received communication signals to respective said identified destination terminals is authorized.

22. (previously presented) A relay terminal for relaying communication signals from an originator user terminal to identified destination user terminals, comprising:

a memory storing relay-authorization-and-priority data for a plurality of said originator user terminals and destination user terminals having respective identification codes;

means for receiving a communication signal for relay to selected said destination terminals, wherein said received signal includes identification codes for said identified destination terminals;

means for detecting said identification codes in said received communications signal;

a computer adapted for processing said detected identification codes and said stored data in combination with time-of-day data and geographical-position data for the relay terminal and the identified destination terminals to determine whether immediate relaying of said received communication signal to respective identified destination terminals is authorized in accordance with the time of day and the relative positions of

the relay terminal and the identified destination terminals; and

means for relaying said received communication signal to the identified destination terminal at times when said relaying is authorized in accordance with said determination.

23. (original) A relay terminal according to Claim 22, further comprising:

means for storing for delayed relay those received communication signals of which immediate relaying to respective said identified destination terminals is not authorized in accordance with said determination in accordance with the time of day.

24. (previously presented) A relay terminal for relaying communication signals from originator user terminals to identified destination user terminals, comprising:

means for receiving a given communication signal sent from a given said originator terminal for relay to one or more selected said destination terminals;

means for detecting the direction of arrival of the received given communication signal by processing portions of the given signal received prior to detecting identification codes in the received given signal;

means for deriving directional-position data associated with the given originator terminal from said detected direction of arrival of the given received communication signal; and

a computer adapted for processing the derived directional-position data associated with the given originator terminal to define a beam path for communications with the given originator terminal.

25. (previously presented) A relay terminal for relaying communication signals from originator user terminals to identified destination user terminals, comprising:

means for receiving a given communication signal sent from a given said originator terminal for relay to one or more selected said destination terminals;

means for deriving directional-position data associated with the given originator terminal from an acquisition segment of a burst of said received given communication signal; and

means for immediately defining a beam path in accordance with said derived directional-position data to enable receipt of the remaining portions of said received signal burst within the defined beam path.

26. (previously presented) A relay terminal according to Claim 25, further comprising means for transmitting an error-corrected version of said received signal burst back to said given originator terminal within the defined beam path.

27. (previously presented) A relay terminal for relaying communication signals from originator user terminals to identified destination user terminals, comprising:

means for simultaneously receiving communication signals sent from a plurality of said originator terminals for relay to a plurality of selected said destination terminals;

means for deriving directional-position data associated with a plurality of said originator terminals from acquisition segments of bursts of respective said communication signals simultaneously received from a plurality of said originator terminals;

means for defining respective beam paths in accordance with said derived directional-position data to enable receipt of the remaining segments of said received signal bursts within the respective defined beam paths; and

means for transmitting error-corrected versions of said received signal bursts back to said plurality of originator terminals within said respective defined beam paths.

Claims 28-33: cancelled

34. (previously presented) A relay terminal for relaying communication signals from originator user terminals to identified destination user terminals, comprising:

means for applying frequency-hopping patterns to said received communication signals for said relay of said communications signals;

means for storing a library of algorithms and parameters for executing a plurality of frequency-hopping patterns; and

means for selecting algorithms and parameters from said library that cause different frequency-hopping patterns to be applied for each simultaneous said receipt and relay of said communication signals;

wherein the selecting means are adapted for causing respectively different said frequency-hopping patterns to be applied to acquisition, identification and payload segments of said relayed communication signals.

Claims 35-47: (cancelled)

48. (previously presented) A relay terminal for relaying communication signals from originator user terminals to destination user terminals, comprising:

means for receiving communication signals sent from a plurality of said originator user terminals for relay to a plurality of destination user terminals that are identified in said received communication signals, wherein said received signals include identification codes for said originator terminals and identification codes for said identified destination terminals;

means for detecting the directions of arrival of given said received communication signals by processing portions of the given signals received prior to detecting identification codes in the received given signals;

means for deriving directional-position data from said detected directions of arrival associated with a said user terminal from which a said given communication signal is received; and

a computer adapted for processing the derived directional-position data associated with the given originator terminal to define a beam path for communications with the given originator terminal in accordance with said derived directional-position data for use when receiving and transmitting communication signals from and to a said user terminal for which the direction of arrival of said received communication signal is detected.

49. (previously presented) A relay terminal according to Claim 1, wherein multiple tables of the relay-authorization-and-priority data are stored in the memory for processing with the identification codes detected in the received communication signals at different times and/or different locations of the relay terminal.

50. (previously presented) A nontransitory computer readable storage medium for use with a computer in a relay terminal that is adapted for relaying communication signals from originator user terminals to destination user terminals, wherein the relay terminal comprises: a memory storing relay-authorization-and-priority data for a plurality of said originator user terminals and destination user terminals having respective identification codes; means for simultaneously receiving communication signals sent from a plurality of said originator terminals for relay to a plurality of said destination terminals that are identified in said received communication signals, wherein said received signals include identification codes for said originator terminals and identification codes for said identified destination terminals; means for detecting said identification codes in said received communications signals; a computer for processing said detected identification codes in combination with said stored data to determine if immediate relaying of said received communication signals to respective said identified destination terminals is authorized; and means for relaying said received communication signals immediately to only those of said identified destination terminals to which immediate relaying is authorized in accordance with said determination;

wherein the computer readable storage medium contains computer executable program instructions for causing the computer to perform the step of:

processing said detected identification codes in combination with said stored data to determine if immediate relaying of said received communication signals to respective said identified destination terminals is authorized.

51. (previously presented) A nontransitory computer readable storage medium for use with a computer in a relay terminal that is adapted for relaying communication signals from originator user terminals to destination user terminals, wherein the relay terminal comprises: a memory storing relay-authorization-and-priority data for a plurality of said originator user terminals and destination user terminals having respective identification codes; means for receiving a communication signal for relay to selected said destination terminals, wherein said received signal includes identification codes for said identified destination terminals; means for detecting said identification codes in said received communications signal; a computer adapted for processing said detected identification codes and said stored data in combination with time-of-day data and geographical-position data for the relay terminal and the identified destination terminals to determine whether immediate relaying of said received communication signal to respective identified destination terminals is authorized in accordance with the time of day and the relative positions of the relay terminal and the identified destination terminals; and means for relaying said received communication signal to the identified destination terminal at times when said relaying is authorized in accordance with said determination;

wherein the computer readable storage medium contains computer executable program instructions for causing the computer to perform the step of:

processing said detected identification codes and said stored data in combination with time-of-day data and geographical-position data for the relay terminal and the identified destination terminals to determine whether immediate relaying of said received communication signal to respective identified destination terminals is authorized in

accordance with the time of day and the relative positions of the relay terminal and the identified destination terminals.